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Cash or Card?

An Explorative Analysis of Consumers' Payment Behaviour in Hungary

Summary: The main purpose of this study is to explore the payment patterns and cash usage behaviour of the Hungarian public and examine the effects of age, income, education and other socio-demographic factors on these habits. In this regard, we focus especially on the public's general attitude towards cash and their subjective payment preferences. Our research is primarily based on data acquired from a questionnaire-based survey of 1,500 people, and we compare the lessons learned from it with international examples. We find that the Hungarian population is clearly pro-cash, and this is especially true for those with lower income and lower educational attainment, the economically inactive and the youngest and eldest age groups. A significant proportion uses cash only out of necessity due to the deficiencies of the payment infrastructure, but they are outnumbered by those who would not want to give up banknotes and coins in the future, for a variety of, typically, subjective reasons. The reasons include, for example, the quickness of cash payment and better control over spending, but habits also play a significant role in payment choices.

Keywords: cash circulation, consumer payment behaviour, cash usage, electronic payments
JEL codes: D12, D14, E42

Efficient and reliable payment systems satisfying the needs of the public are extremely important for the operation of the economy and financial stability, as they allow the smooth exchange of the different goods and services.

WHY IS IT IMPORTANT HOW WE PAY?

Articles by both domestic (Turján et al., 2011) and foreign (Schmiedel et al., 2012) authors support the fact that the establishment and maintenance of payment systems entail serious social costs, even exceeding 1 percent of the GDP, it is, therefore, a priority to examine how the public approaches the different payment methods available, to what extent they use them and what determines their choice. The appropriate knowledge of such information can promote the improved efficiency of cash circulation, thereby supporting the functioning of the national economy.

In this study we briefly describe the data and trends characterizing the current cash circulation in Hungary, then, relying on the data of the representative survey conducted by the Hungarian Central Bank (MNB) in 2017, we analyze in detail the cash usage behaviour and the attitude of the public towards cash, as

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well as what factors influence the choice between cash payment and electronic payment the most. There are numerous domestic and foreign publications available based on similar surveys, which enables us to place our results in an international context and to explore the change in payment habits in Hungary.

CHARACTERISTICS OF THE DOMESTIC PAYMENT TURNOVER

According to the '*Payment System Report*' published by the Hungarian Central Bank in 2018, the efficiency of electronic cash circulation in Hungary is continuously increasing. Over the past years, all of the three indicators assessed by the MNB, i.e. transfer payments, and electronic payment of purchases and bills, have approached the values characterizing the European Union. Our backwardness in the ratio of the transfer payment turnover to the GDP is now minor, and both the small retail electronic payment turnover and the electronic payment of utility bills and other services have experienced a significant development, primarily thanks to the expansion of the domestic card payment infrastructure and the purchase turnover. However, it is worth mentioning that a considerable difference can still be seen in terms of electronic bill payments in comparison with the average values of the European Union, which is principally caused by the unbroken popularity of yellow cheque payments in the post offices.

Although the turnover of card purchases and the number of acceptance points and POS terminals increases by an approximate 25 percent annually, based on the 2016 database of the MNB only approximately 30 percent of the domestic small retail outlets accept card payment, despite the fact that they generate 75 percent of the turnover. The growth of contactless technology can be considered especially significant: also, according to the MNB data, in 2017 73.4 percent of the number of card payments, and 60.1 percent of their value was carried out by this method. Over the past year the number of cash withdrawals by card has increased slightly, only by 2 percent, while in terms of their value, a greater, 8 percent increase was noted, that is, the average value of the transactions has risen (approximately HUF 68,000).

In spite of all these tendencies, after assessing the data of the online cash registers connected to NAV (Hungarian Tax and Customs Administration) it can still be said that a significant part of small retail transactions is carried out in cash, in terms of both their number and their value. Similarly, the cash holdings in circulation has also been increasing for years, in terms of not only their nominal value, but also their ratio to the GDP or the consumption expenditures. Based on the data of MNB, by the end of 2017 the value of the banknotes in circulation in Hungary amounted to nearly 5,040 billion HUF, which means an average annual expansion of 13.5 percent in comparison with the 2,670 billion HUF value in 2012. Among the individual denominations the quantity of the 10 and 20,000 forint banknotes has increased the most, and since November 2017, the 20,000 forint banknote has been the most popular one in Hungary already in terms of total number, which suggests that the large quantity of cash in circulation does not only serve transaction purposes.

In summary, the significance of cash is, therefore, still unavoidable in the Hungarian financial system, so in order to increase efficiency it is extremely important to understand how the public approaches cash, in what situations and in what manner they use it, and what determines how they choose between cash and electronic payment methods, so in the rest of our study, we examine these questions in more detail.

RESEARCH METHODOLOGY

The basis of our analysis is given by the survey conducted by the MNB in autumn 2017, the purpose of which was to map the cash usage behaviour and attitude of the Hungarian public, their general experiences relating to cash circulation, and their knowledge of the forint banknotes and the ongoing banknote redesign program. The survey consisted of two parts: a quantitative data survey conducted on a sample of 1,500 persons, which was representative in terms of age, gender and place of residence, and heterogeneous in terms of economic activity, and interviews conducted in 10 regional (Budapest, western and eastern Hungary) focus groups formed in view of lifestyle and age. The data survey was conducted by Századvég Politikai Iskola Alapítvány (End of the Century Political School) on behalf of the MNB. The brief summary of the relevant questions of the questionnaire used can be found in the *annex*.

The quantitative data survey was made with a so-called hybrid method: 900 persons (in the age group above 35 years) were asked on the phone by an interviewer, 600 persons (in the age group of 16–24 years and 25–34 years) filled in the questionnaire independently, online. In case of both methods, the questionnaires started with questions concerning socio-demographic characteristics (age, gender, educational attainment, labour market status, income, type of place of residence), which were followed by questions relating to the method of accessing cash, holding cash and cash payment behaviour, then questions on attitude to cash and motivations of using cash. Within the questionnaire the questions relating to the knowledge of the safety features on the banknotes, the renewed banknotes and the banknote redesign program constituted separate blocks. The analysis of the answers given to these questions is not the subject of this study.

In the qualitative research round the data survey took place in a total of 10 focus groups, with the participation of 8 interviewees per group. The interviews were conducted by qualified moderators, and the structure of the interviews followed that of the quantitative questionnaires. Generally speaking, the experience of the interviews confirmed the lessons learned from the answers given to the questionnaire, so in our analysis we primarily relied on the results of the quantitative part of the survey.

EARLIER SURVEYS WITH SIMILAR FOCUS

The MNB has already conducted surveys on payment habits and cash usage (Illyés, Varga, 2015; Takács, 2011), and numerous foreign central banks also publish researches on such topics regularly, using questionnaire-based data survey. Similarly to the MNB, the Polish (Goczek, Witkowski, 2015) or the Spanish central bank (Pérez et al., 2014) uses exclusively questionnaires to map the habits of the population, while the Austrian (Rusu, Stix, 2017), the German (Deutsche Bundesbank, 2018), the Swiss (Schweizerische Nationalbank, 2017) and the Dutch (Cruijsen et al., 2015; Cruijsen, Plooij, 2015) central banks as well as the European Central Bank (Bagnall et al., 2014; Esselink, Hernández, 2017) and the American Federal Reserve (Bennett et al., 2014; Wang, 2015) also apply so-called physical diaries for this purpose, which means that the interviewees regularly record all of their purchases or transactions in detail, independently or with the assistance of an interviewer.

In this analysis we strive to interpret the payment behaviour of the Hungarian public in comparison with other countries, but the possibility of a quantitative comparison is limited by the fact that the questions asked in the different questionnaires on similar top-

ics use a different wording, and the possible answers are also different. We must not ignore the fact that nowadays the payment behaviour and preferences of the population may substantially change even from one year to another, which can also harm the comparability of our data with previously published studies.

A transnational comparative survey on payment habits and cash usage was conducted, for example, by *Bagnall et al.* (2016), however, the data used by them are from the period of 2009–2012, so we primarily consider the findings made on the typical reasons for the differences between the different nations relevant to this study. We also find it important to mention the work by *Alvarez, Lippi* (2017), in which the authors examine the factors influencing the choice between cash and electronic payment methods using a dynamic model based on inventory models.

THE PAYMENT AND CASH USAGE BEHAVIOUR OF THE HUNGARIAN POPULATION

In this chapter of our study we explore the quantitative findings of the 2017 MNB survey in detail, and, where the methodology allows, we compare the data and the conclusions drawn from them with the previously published Hungarian and international researches, with particular regard to the work of *Esselink, Hernández* (2017) based on the data of the survey conducted by the European Central Bank in 2016. For reasons of space, the data tables are not included in our study, but they can be downloaded from https://www.mnb.hu/bankjegy-es-erme/publikaciok/webcímen.

According to Bagnall et al. (2017) the differences seen between countries in terms of cash usage behaviour stem from 6 possible reasons:

- costs associated with cash (costs of cash withdrawal and cash holding, including opportunity costs, for example, the risk of lost interest or theft),
- POS terminal coverage (and its subjective perception),
- behavioral preferences,
- the structure of expenditures (purchase habits, what the population typically spends on and how much),
- different public and market incentives,
- the size of the grey and black economy.

Although the questionnaire-based research primarily used for our study is not appropriate to extend to each described aspect in detail, and in certain cases (for example, the size of the shadow economy) we cannot rely on statistical data either, in the analysis of the domestic situation we strive to discuss at least marginally all the 6 factors mentioned above.

Access to cash and cash holding

Based on the findings of the analyzed survey, 71 percent of the interviewees with regular income receive their salary mostly by transfer payment, while 21 percent of them generally receive it in cash. Pursuant to Esselink, Hernández (2017) the Hungarian values are essentially identical to those measured in Slovakia, Lithuania or Cyprus, that is, the members of the euro area in a position similar to Hungary (based on economic indicators). A slightly larger proportion, 84 percent of the population in the entire euro area access their income by purely electronic means.

According to our data, the incomes received in cash characterize the interviewees in the youngest (aged 16–29) and the oldest (above 60 years) age group to a significantly greater extent. In case of young people this can be explained by the pocket money received from the parents in cash, while in case of older peo-

ple by the mistrust towards banks and electronic solutions, and the pension received in the form of cash. This is demonstrated by the fact that, compared to active workers, a significantly larger proportion of pensioners receive the majority of their income in cash (15.8 vs. 30.5 percent). It can also be established that those with lower educational attainment and those living in households with lower income are also more likely to access their incomes in the form of cash. Presumably, this can be explained by the fact that a large proportion of the workers in these groups are employed in sectors where grey incomes are more frequent than the average, for example, in the construction industry, the small retail sector and the catering industry.

The interviewees who receive their incomes at least partly by transfer payment generally access cash from ATMs (79 percent). The proportion of those who use bank cashiers for this purpose is significantly lower (10 percent), while some do not withdraw cash at all (8 percent). Generally speaking, the interviewees (81 percent) are characterized by 1–2 monthly cash withdrawals. Concerning the sum withdrawn on one occasion the majority specified the range between 50,000 to 100,000 forints (47 percent). There are slightly fewer people who withdraw an amount below 50,000 HUF (32 percent) or a sum between 100,001–150,000 HUF (19 percent). On the basis of all this, it is likely that the majority of the population strives to take advantage of the free of charge cash withdrawal twice a month, in a total value of 150,000 HUF, which is guaranteed by the law. The comparison with international data also supports this: Hungarian people withdraw cash fewer times on average, but in a larger amount than their Western European counterparts.

According to the research of Esselink, Hernández (2017), the residents of the euro area tend to withdraw cash from an ATM or a branch on average 2.5 times per month. Although no exact average can be calculated from the data of the questionnaire-based MNB survey, it can be assumed based on the figures that the Hungarian public withdraws money on average fewer times than the above. The reason for this may be the worse availability of ATMs and bank branches, and the high cash withdrawal charges. The typical amount of cash withdrawn on one occasion shows great differences in the countries of the euro area, yet we can say that 80 percent of the interviewees generally take out an amount of less than 200 euro on one occasion. As a comparison, in Hungary only 32 percent claimed to withdraw cash of only up to 50,000 forints at once (considering the purchasing power parities as well, the two sums are quite close to each other). It is worth mentioning that, by their own admission, 60 percent of the population of the euro area access cash free of charge at any time, whereas this proportion is only 25–35 percent in Slovakia, Slovenia and the Baltic countries.

The research of the Swiss Central Bank teaches us interesting lessons in connection with cash withdrawal (Schweizerische Nationalbank, 2017): according to their findings the most frequently withdrawn denomination is the 100 francs banknote, but cash payments are predominantly made with 10 and 20 francs banknotes. According to the authors a possible reason for this is that ATM machines generally contain larger denominations by logistic considerations, while cash users access smaller denominations in the form of change received from payments with larger banknotes. It is worth mentioning in this context that based on the questionnaire-based survey of the MNB, 40 percent of the Hungarian interviewees face the problem at least occasionally that the ATM gives too big notes when withdrawing cash, and it occurs occasionally to 69 percent of them that they cannot get

change from the big bill they intend to use when making a purchase. This suggests that the predominance of big notes in the domestic cash holdings does not necessarily reflect the cash usage preferences of the public.

Although the questionnaire-based survey of the MNB has cash usage for transactional purpose in the focus, the survey contained some questions concerning savings. By their own admission, a little less than third (31.4 percent) of the interviewees hold at least one part of their savings in cash, however, the data should be used with reservations as the proportion of those who try to hide their potential savings is presumably not insignificant. Based on Esselink, Hernández (2017) in the countries of the euro area this proportion is 24 percent, but the figures of the Central European and Baltic countries are approximately identical to the domestic figures. The rate of savings in cash is presumably increased by the currently existing low interest environment. As a result, holding cash does not incur considerable costs (or interest loss), but the analysis of this link is not included in this study.

In connection with the incomes acquired in cash and the savings held in cash, the role of the shadow economy often arises in the public opinion of both scientists and laypersons. A good example of this is the book by *Rogoff* (2016) causing serious debates, which advocates the complete elimination of cash, as according to the author a crucial part of the large amount of cash circulating in the world is used to finance illegal activities (tax avoidance, corruption, terrorism, smuggling). However, *Hummel* (2017) points out that this statement is scientifically unfounded, while *Seitz et al.* (2018) declares after analyzing data from developed countries by statistical methods that no significant relationship can be demonstrated between the demand for cash and the estimated size of the shadow economy. We find that the assessment of this link clearly deserves further research, but the methodology of this study does not allow a more detailed analysis.

Payment behaviour

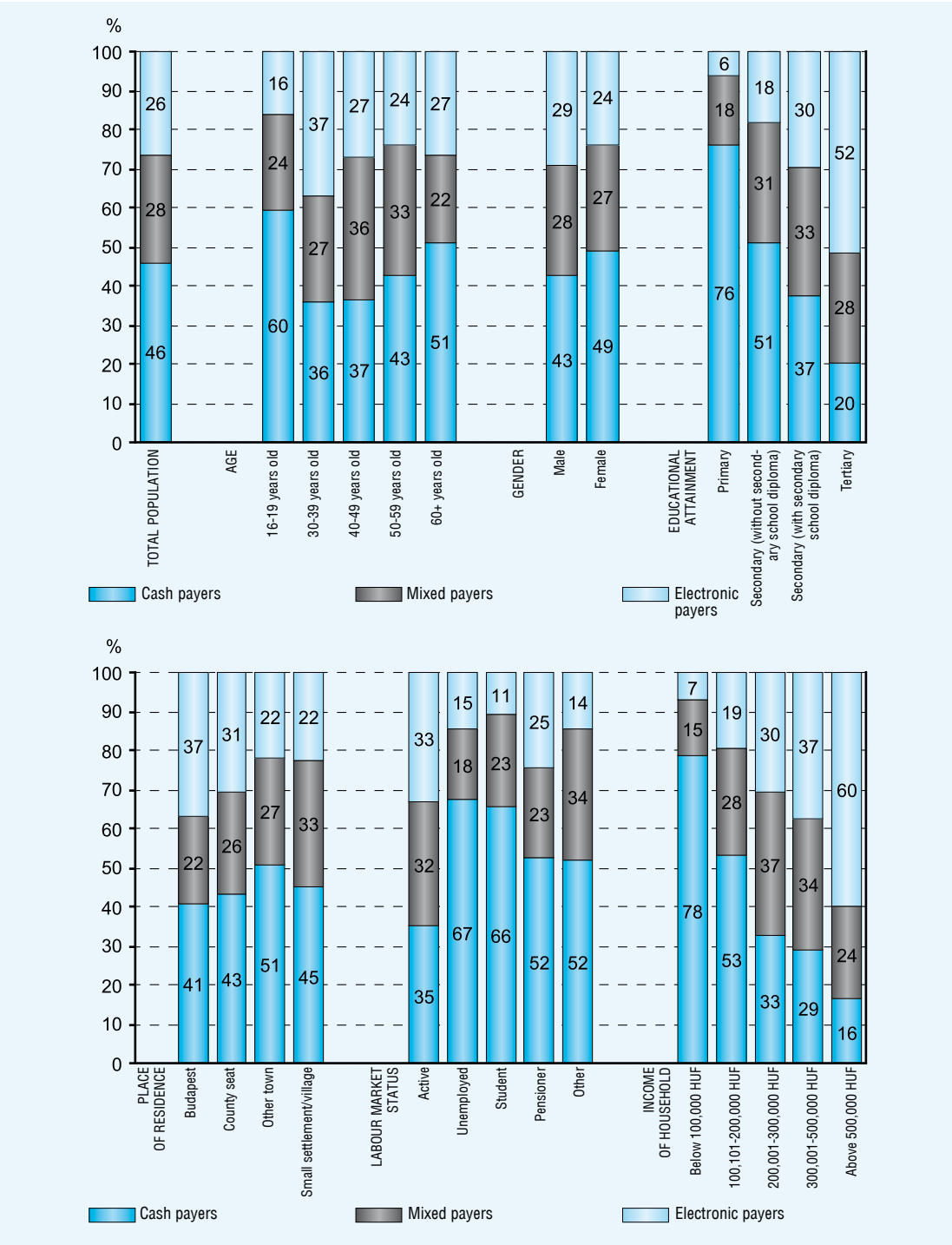
An important objective of the questionnaire-based survey of the MNB was to find out how the Hungarian public and certain demographic groups thereof pay for their regular purchases. The question did not ask in what proportion the interviewees use the different payment methods, instead, the interviewees had to decide whether they rather pay in cash in everyday situations (hereinafter: payers in cash), or they rather use a bank card (hereinafter: electronic payers),[1] or they do not have an unambiguous preference and they choose between the two options depending on the occasion (hereinafter: mixed payers).

Based on the answers we can say that cash is still the most popular means of payment (46 percent). A little more than a quarter (26 percent) of the survey participants predominantly pay by electronic means and the proportion of those who decide which means of payment to use for the given purpose on a case-by-case basis is similar (28 percent).

When examining the answers in a breakdown according to age groups (*see figure 1*), we can say that, quite surprisingly, young people (aged 16–29) and, correspondingly, students use cash in a significantly larger proportion than the average. The main reason for this is probably that the income received in cash is particularly typical for this age group, especially for those aged 16–18 (pocket money). If we examine the age group 18–29 separately, still a significant, but materially smaller difference can be seen in the proportion of payers in cash compared to the total population. As expected, many older people (above 60 years) are also part of those who pay regularly

Figure 1

THE DISTRIBUTION OF PAYMENT METHODS USED IN REGULAR PURCHASES ACCORDING TO SOCIO-DEMOGRAPHIC GROUPS



Source: Own editing based on MNB survey

in cash. It is remarkable as well that the proportion of payers in cash shows quite a strong link with educational attainment and household incomes. Among the interviewees with the lowest educational attainment and living in the households with the lowest incomes, their proportion is 4–5 times higher compared to those with tertiary educational attainment and those living in wealthier households. This is also explained partly by the fact that in case of these groups incomes in cash are more frequent, but it can be assumed as well that the interviewees with lower income are more sensitive to bank charges, while those with lower educational attainment manage their finances less consciously. The link between income and cash usage is confirmed by the researches conducted by, for example, *Bagnall et al.* (2017), the Federal Reserve (Bennett et al., 2014), as well as the Swiss (Schweizerische Nationalbank, 2017) and the Austrian central bank (Rusu, Stix, 2017). Latter authors demonstrated a link between age and cash usage similar to what we found.

The type of place of residence influences the payment behaviour to a materially smaller extent than the factors described above: our data do not clearly confirm the stereotype which says that cash usage is more typical in small settlements and villages. Although it is true that among the interviewees living in smaller towns the proportion of payers in cash is significantly higher than among those living in Budapest, the same cannot be said about those living in small settlements and villages. The main reason for this can be the fact that in small towns accessing cash can often be time-consuming and costly, while, at the same time, it might also indicate the improvement of the electronic payment infrastructure.

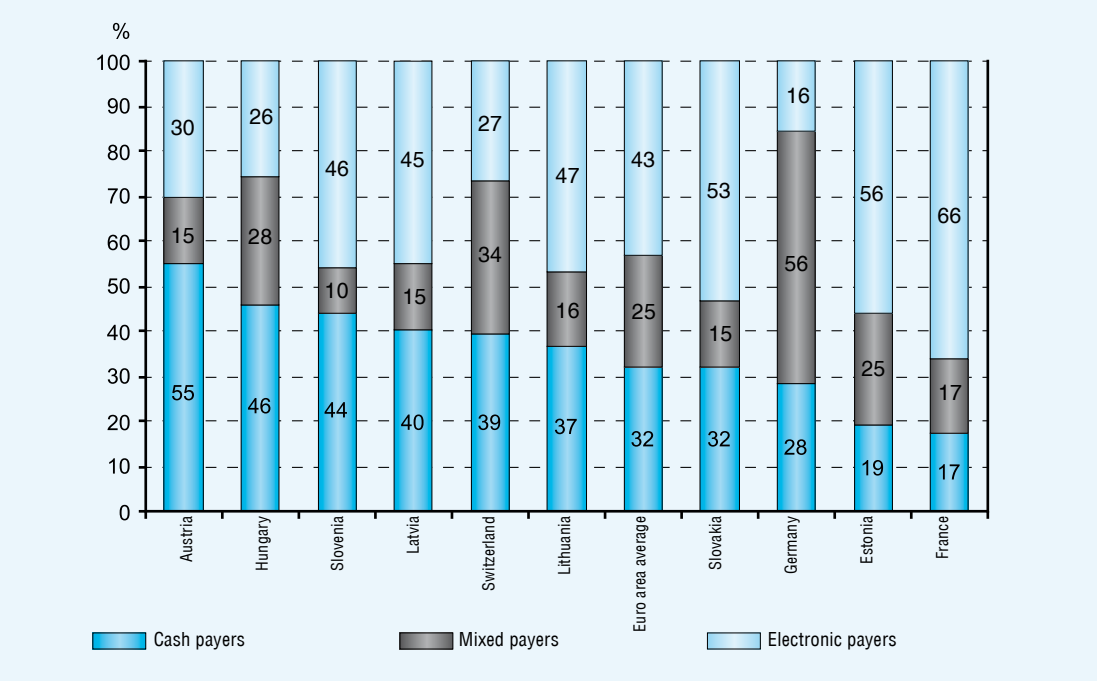
As nearly each previously mentioned research on payment behavior contains a question with similar wording,[2] the data are easy to compare with the figures of the neighboring countries (*see figure 2*). By their own admission, 32 percent of the residents of the euro area pay predominantly in cash, 43 percent use a bank card, and 25 percent decide on a case-by-case basis. Based on the data of the survey conducted by the MNB, the situation of Hungary is similar to Slovenia in terms of the proportion of those paying in cash, and surprisingly, we 'precede' Austria in this respect, although it is considered cash friendly. A higher proportion of the residents of Slovakia and the Baltic countries pay rather by card or by mixed methods, and the same is true for the citizens of Switzerland and the more developed countries of the euro area. The proportion of those predominantly paying in cash is the lowest in France.

Although the different methodology does not allow the comparison of the numeric values, our results are consistent with the findings of *Ilyés, Varga* (2015) on the domestic situation, according to which a higher educational attainment and income are accompanied by a higher rate of electronic payment usage, and the same is true for those with an active worker status. It is true according to both studies that those above the age of 60 use cash at a rate above the average, although an important difference is that based on our findings the same can be said of the age group of 16–29, while according to the data of the article referred to above the difference is not significant in their case. The different findings may be explained by the fact that the MNB survey serving as the basis for this study was conducted with the participation of people aged 16–18, who are particularly unlikely to own a bank account, so they make almost all of their payments in cash, by contrast, the data collection of Ilyés and Varga (2015) concerned only the adult population.

In case of the foreign studies referred to above the findings are worth being compared

Figure 2

INTERNATIONAL COMPARISON OF PAYMENT METHODS PREFERRED BY THE PUBLIC (BASED ON OWN ADMISSION)



Source: Own editing based on MNB survey

to the lessons learned from the payment diaries as well. According to the data of the European Central Bank (Esselink, Hernández, 2017) 80 percent of the transaction made in everyday purchases in the countries of the euro area are carried out in cash, which means in terms of value 59 percent of the paid sums (the same value is 70 percent and 45 percent in case of Switzerland). The proportion of card payers is somewhat higher than the above in Slovakia, Slovenia and the Baltic countries, while Austria and the countries in Southern Europe (Italy, Spain, Greece) have the largest share of payments in cash.

No survey of this type has been made in Hungary so far, but the turnover data of the online cash registers connected to the tax administration are available (MNB, 2018), which roughly cover the domestic small retail sector. According to the data, 87.7 percent of the count and 71.5 percent of the value of the payment transactions in 2016 were carried out in cash. It is important to underline that these figures, although they seem substantially higher, cannot be directly compared to the European data previously referred to, as they do not contain, for example, a significant part of the services sector or the housing costs.

The payment of bills

The survey serving as the basis for our study assessed separately within the payment patterns what payment methods are used by the interviewees to pay their utility bills. The most frequently used method is cash payment, including both yellow cheque payments and those made at customer service without a cheque: 70 percent of the interviewees pay

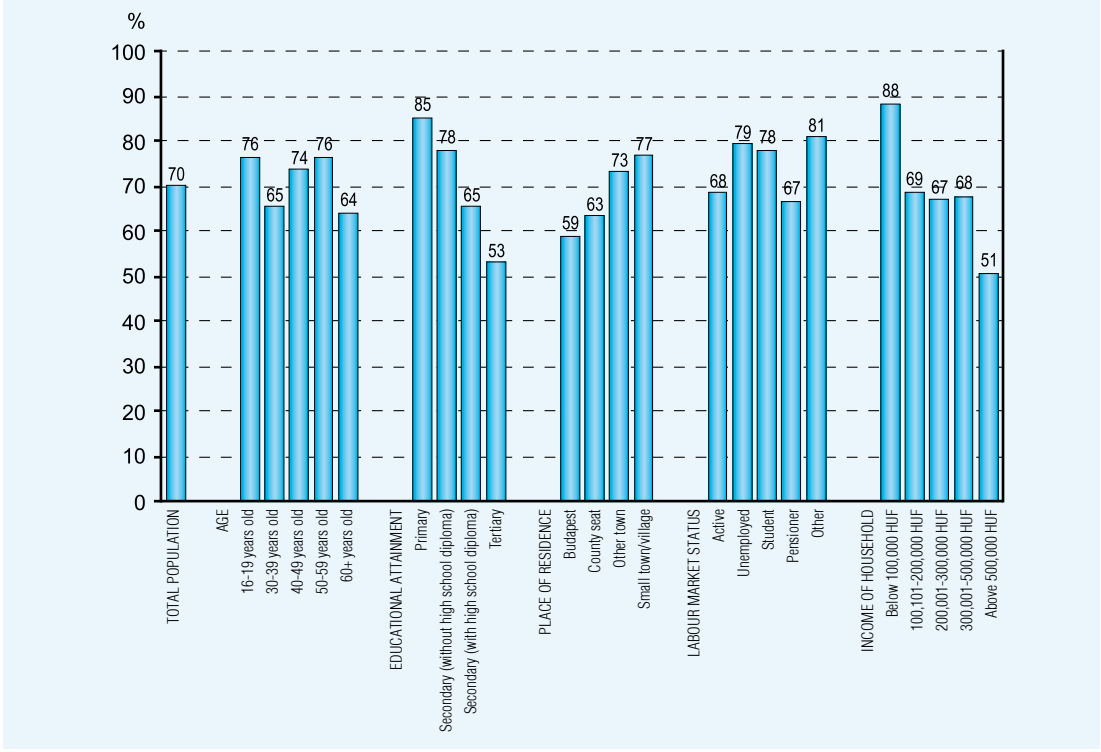
their bills partly or totally by these methods. Transfer payment was used by 43 percent, direct debit by 28 percent, and online card payment (either on the website of the service provider or through Díjnet) is used by 26% of the interviewees at least on an occasional basis.

Not surprisingly, based on the data of the questionnaire-based survey the use of cash bill payment is more typical for socio-demographic group which generally tend to pay in cash, including the age group of 16–29 years, those with lower educational attainment, and the members of households with the lowest income *(see Figure 3)*. It is more interesting, however, that a lower proportion of people above 60 and pensioners use this payment method than the average, and it can also be clearly seen that the payment of bills in cash is more typical for the residents of small towns and villages. However out of date the yellow cheque method may seem, we cannot say that its use would only be frequent out of habits in case of the older age groups. One of the possible reasons for this in case of younger people and those with lower income may be the conscious allocation of household expenditures, as the payment of the bills paid this way is subject to flexible payment deadlines.

It is true for each electronic bill payment method that it is more frequently used by interviewees with higher educational attainment, by those living in households with higher income and by active workers. Transfer payment and card payment particularly characterize young people and students, while direct debit and card payment are more popular than the average with those living in the capital city. We find it important to empha-

Figure 3

BILL PAYMENT IN CASH ACCORDING TO DEMOGRAPHIC GROUPS



Source: Own editing based on MNB survey

size that young people and students generally indicated the use of several payment methods (two on average, as opposed to one and half typical for older people), we can, therefore, assume that in case of this group it is less typical to commit to one particular method, and it is more frequent to pay different bills by different methods.

It can be said in international comparison that with respect to the electronic payment of bills, Hungary is lagging significantly behind the countries of the euro area, where according to the research by the European Central Bank previously referred to, 53 percent of the population do not pay any bills in cash (including also the rent and the insurances). Apart from Greece, Cyprus and Malta the proportion of the households which generally pay their utility bills in cash is below 30 percent in all of the member states.

The backwardness is confirmed by the statistical indicators of the MNB. Based on the available data a total of 56.1 percent of bill payments in 2017 in Hungary were carried out in cash. This can be considered a great improvement compared to the 76.5 percent measured in 2012, but it is significantly higher than the average value of 30 percent typical for the European Union in 2016[3] (the 2016 value of the relevant indicator is 60.8 percent).

What do we think of cash?

As the payment behaviour of the public is influenced significantly by the attitudes and subjective opinions on payment methods (Bagnall et al., 2017; Rusu, Stix, 2017), the survey conducted by the MNB contained questions in this regard. Now we are going to analyze the answers given to these questions.

The first question group contained statements for the interviewees to decide to what extent they agree with them on a six-point scale (0: fully disagrees, 5: fully agrees). On the scale, therefore, answers 1 and 2 express disagreement, while 3 and 4 rather mean agreement. *Figure 4* summarizes the proportion of each answer, and we analyze them in more detail below.

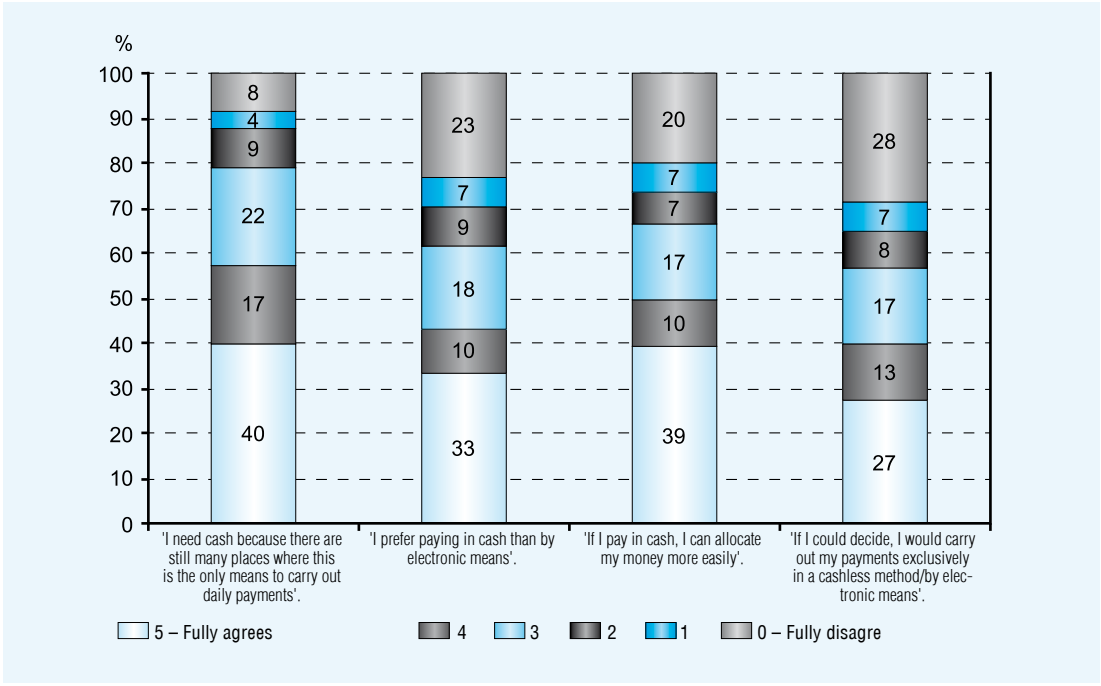
I. 'I need cash because there are still many places where this is the only means to carry out daily payments.'

The statement primarily intended to assess how the participants of the survey regard the POS terminal coverage of the shops visited by them. Nearly 40 percent of the interviewees fully agreed that they need to have cash in order to carry out their daily payments, and a further 38 percent belongs to those who rather agree. The opinion that the domestic POS terminal coverage is insufficient to carry out daily payments only by electronic means can therefore be considered dominant, which confirms that the population seems to be open to a further shift in the direction of electronic payments. There is no significant difference between the answers of each demographic group, except for the fact that a higher proportion of older residents agree with the statement. It is also worth mentioning that even the mixed payers do not agree with it to a larger extent. Based on survey data in the USA, *Wang* (2015) also found that it is less typical for younger generations to regularly hold cash with them to be safe even if they mostly pay by card.

Huynh et al. (2014) realized on the basis of the cash usage data prepared by the Austrian and Canadian central bank, using an inventory model devised by him, that the increase in the proportion of card acceptance points significantly decreases the demand of the pubic for cash. According to *Rusu és Stix* (2017) the opinion of the public on this subject may also play an indirect role, as if someone is not sure

Figure 4

ATTITUDE SURVEY ON CASH AND ELECTRONIC PAYMENT



Source: Own editing based on MNB survey

whether they can make their future payments by electronic means or not, they will be likely to hold more cash with them that they will then spend sooner or later. However, *Bagnall et al. (2017)* highlights that when comparing the Dutch and Austrian data, it is remarkable that although in the former country the quantity of the POS terminals in proportion with the population is only slightly higher, the proportion of cash transactions is significantly smaller, so the rate of cash usage definitely cannot be explained solely by this factor. This is confirmed by both the lessons learned from this survey and the statistical data:

- on the one hand, based on the 2016 data of the domestic online cash register data base, about 84 percent of the transactions (in terms of their number) was carried out in cash (MNB, 2018) even in the shops where customers also have the option to pay by card,
- on the other hand, according to the survey serving as the basis for our study, those in the group of *mixed payers* do not agree more with the statement about the absolute necessity of cash than the average, so this is supposedly not the primary reason for their cash usage.

II. 'If I pay in cash, I can allocate my money more easily.'

A third of the interviewees find the statement absolutely true, and a total of more than 60 percent expressed their agreement. Individuals with lower educational attainment, unemployed, students, pensioners and people living in households with lower income

agreed with it to a significantly greater extent. Overall, it is reasonable to suppose that the better allocability of the income is considered as an aspect influencing cash usage in case of those with lower income and those managing their finances less consciously. The answers of mixed payers do not differ from the average significantly. In comparison, 87 percent of the German population rather agreed with the statement equivalent to this one (Deutsche Bundesbank, 2018).

It is worth mentioning that with regard to this topic several publications have appeared over the past years, with the objective to analyze what kind of effects electronic payment methods (bank and credit cards in the first place) have on the purchasing and money spending habits of consumers. *Chatterjee and Rose* (2012), for example, recognized by experiment that in case of card payment the negative feeling produced by the paid amount arises in the thoughts of the subjects with less emphasis and the pleasure relating to the purchased product is more powerful. *Runnemark et al*. (2016) reached the conclusion also by experiment that in case of buying identical products the participants showed more willingness to pay if the amount to spend was available in an electronic form.

III. 'I prefer paying in cash than by electronic means.'

Two thirds of the participants of the survey rather agreed with this statement, and nearly 40 percent of them clearly preferred cash payment. The dividing nature of the statement is shown by the fact that the proportion of those who do not agree at all is a little above 20 percent. Those in the age group of 30–39 years, those living in Budapest and in county seats, active workers and those with higher educational attainment, as well as those living in households with higher income are significantly less in favor of payment in cash.

As expected, those who prefer paying in cash typically do so when making their everyday purchases, and the same is true in case of card payment as well. However, 6 percent of even those who fully prefer cash, and 10 percent of those refusing it the most pay predominantly by a method contrary to their subjective preferences, and 16 and 22 percent of the given groups claim to be mixed payers *(see figure 5)*. Nearly 80 percent of those preferring card payment but paying in cash or by mixed methods agree with the previously discussed statement *('I need cash because there are still many places where this is the only means to carry out daily payments.'),* so it can be said that in their case the involuntary cash usage is primarily explained by the insufficient POS terminal coverage. Approximately 10 percent of the interviewees can be classified in this group.

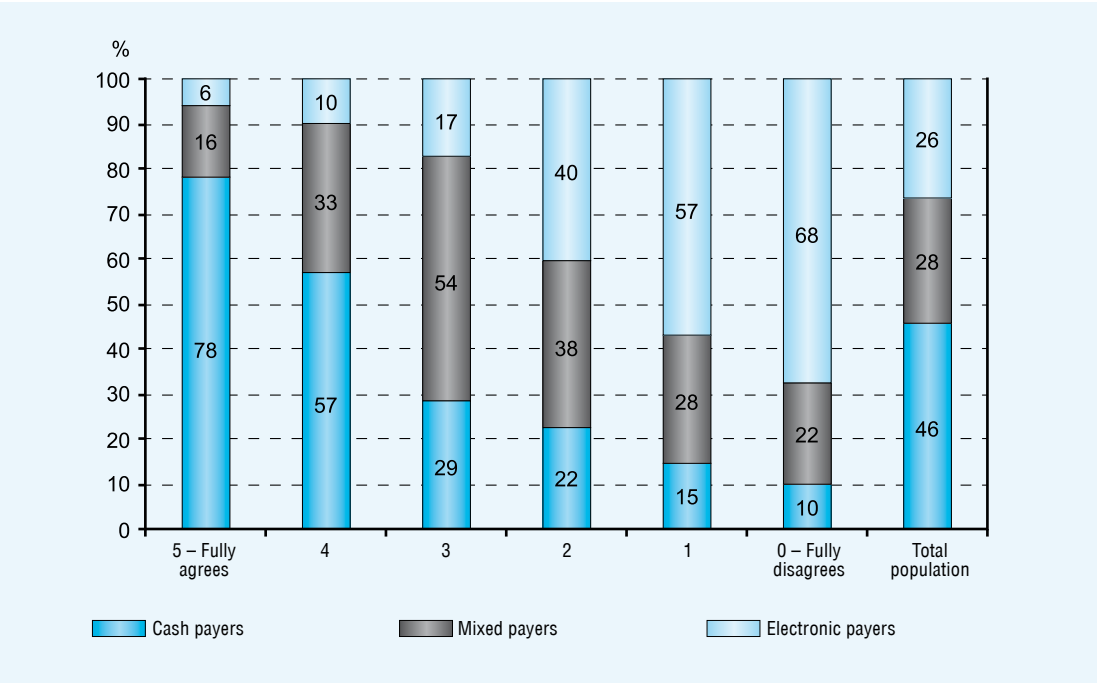
The motivations of those preferring cash but paying by card or by mixed methods in their everyday transactions cannot be clearly defined from the data of the survey, but the answers relating to statement IV *('If I could decide, I would carry out my payments exclusively in a cashless method/by electronic means.')* provide some help to interpret the phenomenon. According to our assumptions, safety reasons may play an important role in the decision, as well as the fact that nowadays public opinion considers electronic payment solutions typically more up-to-date, and economically more favourable.

IV. 'If I could decide, I would carry out my payments exclusively in a cashless method/by electronic means.'

In the survey this statement proved to be the most dividing: those who agreed with it to a maximum extent and those who fully disagreed were in equal proportion (27 per-

Figure 5

JOINT REPRESENTATION OF SUBJECTIVE PREFERENCES *('I PREFER PAYING IN CASH')* AND THE ACTUAL PAYMENT PATTERNS



Source: Own editing based on MNB survey

cent vs. 28 percent). Among the less extreme answers the answers rather agreeing were in a slight majority. When examining the differences between each socio-demographic group, it can be observed that a significantly larger proportion of the groups with higher educational attainment and living in households with higher income, those in the age group of 30–39 years and active workers agree with the statement.

Similar opinions were examined within the framework of the research by the German central bank on payment patterns (Deutsche Bundesbank, 2018), and the result shows that 88 percent of the German population require the option to pay in cash in the future as well and refuse any potential future restriction of cash usage. In this regard the majority agree that cash is a priority tool in the education of children to become financially aware, and forcing the shift to electronic payment would make the life of older generations unreasonably more difficult. The proportion of those who think that the abolishment of the cash payment method would affect them adversely reaches 81 percent. By comparison, the Hungarian interviewees can be considered rather open towards the expansion of electronic solutions.

Comparing the answers to the reactions given to statement III *('I prefer paying in cash than by electronic means.')* provides the opportunity to detect some useful observations. The respondents can be divided into 4 groups.

❶ Individuals who like cash and do not want to give up cash usage in the future, and are willing to use electronic solutions at most partially: a total of 36.6 percent of the inter-

viewees belong to this group. Those above the age of 60 and pensioners, those with primary educational attainment and those in the two groups with the lowest income are overrepresented.

❷ Individuals who refuse cash and are willing to make their payments fully by electronic method if they have the chance: a total of 27 percent of the interviewees belong to this group. Those in the age group of 30–39, those with tertiary education attainment, those living in Budapest and county seats, active workers and those in the groups with the highest income are overrepresented.

❸ Individuals who prefer cash but are open to using electronic payment methods and consider that the full transition to these is possible: a total of 29.8 percent of the interviewees belong to this group. Those aged 50–59, those with secondary education but without a secondary school diploma, those in a different type of labour market status (typically stay-at-home wives) and those in the groups with lower incomes are overrepresented.

❹ Individuals who refuse cash but find cash usage necessary, and do not find the exclusive use of electronic payments desirable: a total of 6.6 percent of the interviewees belong to this group. Those aged 16–29 are overrepresented.

It can be assumed that the further promotion of electronic solutions would be possible in case of those belonging to group 2 and 3, currently paying in cash or by mixed methods, as especially in case of the latter group, cash usage is clearly dominant at the moment, but surprisingly the proportion of those who make their regular purchases predominantly by card is only 66 percent even among those who prefer card payment and do not insist on cash, so in their case the rate of involuntary cash usage can be considered expressly high. The distribution of the groups formed based on subjective payment preferences and the openness towards electronic payment methods, according to the payment method used in regular purchases, is shown by *figure 6*.

What determines how we pay?

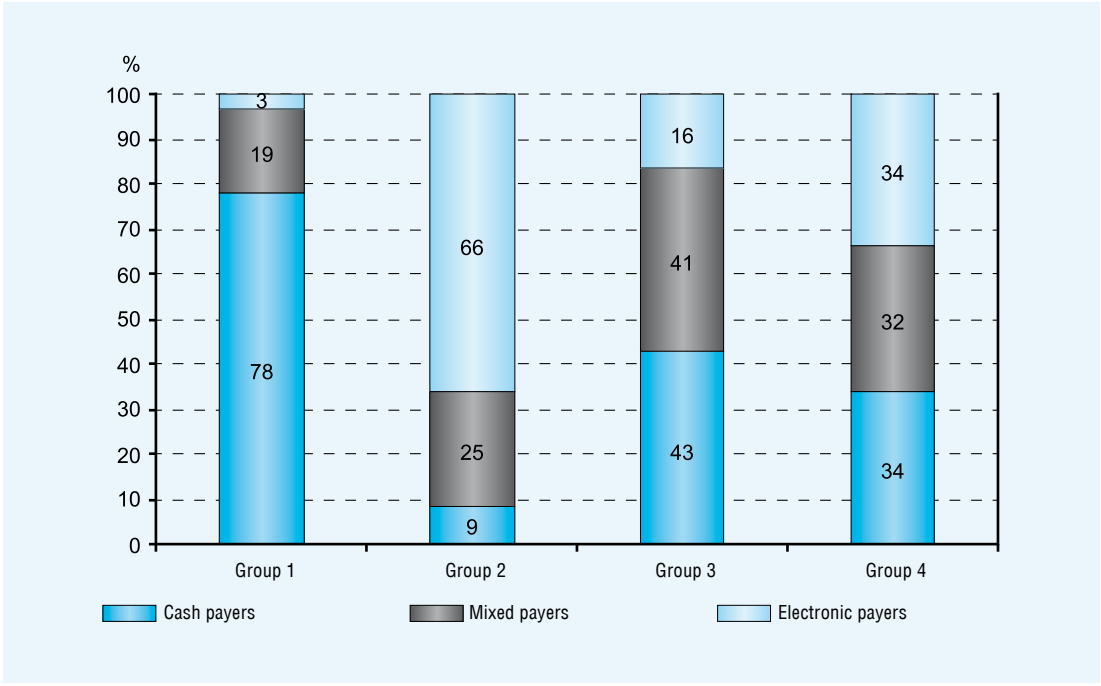
In order to understand consumer payment behaviour and cash usage better, it is indispensable to know on what basis we decide between bank card and cash in everyday purchase situations, so questions concerning this matter were included in the MNB survey serving as the basis for this study.

The interviewees had to evaluate the importance of 3 aspects on a six-grade scale: the rate of the payable amount, the location of the payment and the habit. They could also mention other determiners. According to the data readable from *figure 7,* the rate of the amount payable and the location of the payment influence to an equal extent whether the interviewers rather pay in cash or by electronic means (they do not influence 28–29 percent of them at all, 11–12 percent to a minor extent, 34–37 percent to a greater extent, 23–26 of them are fully influenced). *Habit* as a motivator is a little stronger than the previous ones. 30 percent of the participants of the survey claim that they pay in cash entirely for this reason, and another 30 percent are also influenced by this to a great extent. It can be observed that it is less typical to pay in cash out of habit in case of the interviewees with a higher educational attainment and those living in households with higher income. The reasons textually mentioned include the purchased product, the need to allocate the income, the amount of cash they hold, safety considerations, and the conscious avoidance of bank transactions and the charges associated with them.

We made an attempt to determine what the strongest determiner is for mixed payers, as supposedly it is them who make an occa-

Figure 6

THE DISTRIBUTION OF THE GROUPS FORMED BASED ON SUBJECTIVE PREFERENCE AND THE OPENNESS TOWARDS ELECTRONIC PAYMENT METHODS, ACCORDING TO PAYMENT METHOD



Source: Own editing based on MNB survey

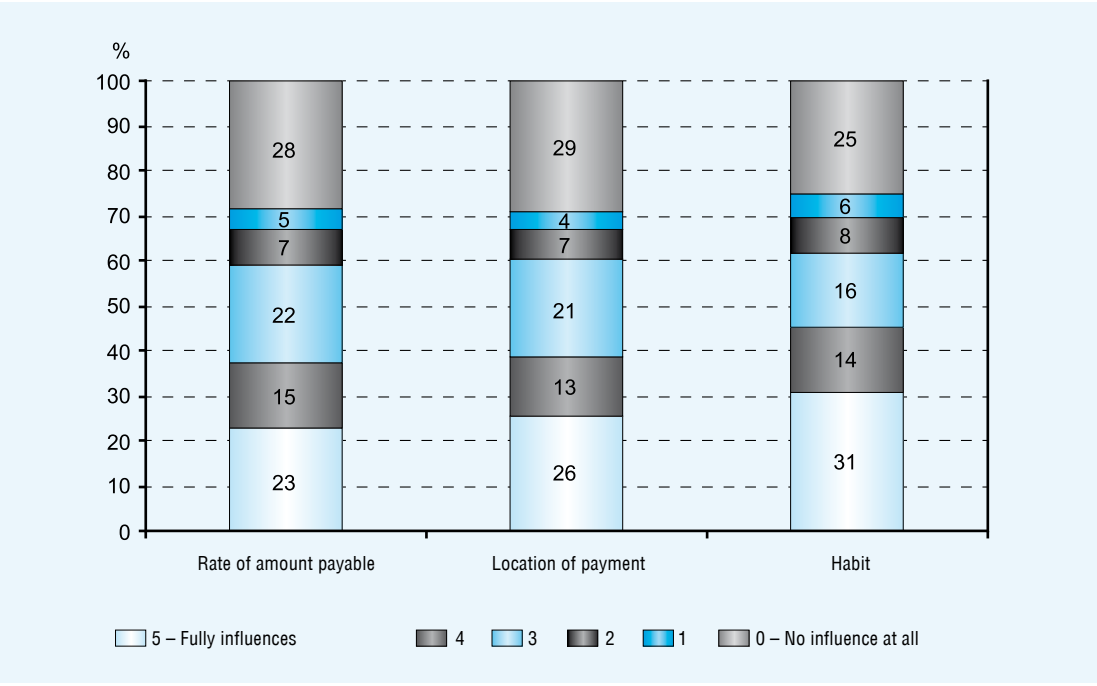
sional decision the most often on which payment method to use, however, in their case, no material differences can be observed between the opinions on the 3 possible answers. It is true in case of all of them, however, that they influence a slightly higher percentage of the interviewees to a great or full extent than in case of the total population. Furthermore, it can be said that habit is a less pronounced factor among those in this group.

The research of *Esselink, Hernández (2017)* concerning the euro area also included questions similar to the above: in that case an average of 56 percent of the interviewees identified the rate of the amount payable as a determiner, which is almost identical to the Hungarian data. Also, 56 percent indicated the amount of the cash held with them at the moment of payment, while the current costs (for example bank charges) and advantages (e.g. collection points) mean an important aspect to approximately 15 percent. The type of payment method preferred by the seller in case of the purchase plays a role also to a similar extent.

Although in a slightly different wording, the survey of the Swiss central bank (Schweizerische Nationalbank, 2017) also attempted to determine what circumstances influence those paying by mixed methods to make a decision between cash and card. Differently from the surveys of the MNB and the European Central Bank, in this case only one possible answer could be indicated. According to our results, 40 percent of the interviewees choose mainly according to whether cash is currently available to them, while 31 percent of them are influenced the most by

Figure 7

THE FACTORS INFLUENCING THE CHOICE OF THE PAYMENT METHOD



Source: Own editing based on MNB survey

the amount payable, and 11 percent make a completely spontaneous decision.

The questionnaire-based survey conducted by the MNB does not cover how each perspective influences the interviewees. In case of the amount payable it can be assumed that in accordance with the European trends, the Hungarian public also prefers paying larger amounts by card, possibly by transfer payment, and smaller amounts in cash. Based on Esselink, Hernández (2017) an average amount of 45 euro can be considered as a dividing line in the euro area, below this level cash payments, and above electronic payments are in majority. On the contrary, according to the data of the Swiss central bank (Schweizerische Nationalbank, 2017), in their country cash usage can be considered dominant only in case of payments above 20 francs. However, banknotes and coins do not constitute the most frequent payment instrument in case of sums above 67 euro in the clearly pro-cash Germany (Deutsche Bundesbank, 2018), and only above 100 euro in Austria (Rusu, Stix, 2017). Another interesting finding is that according to the data of the Austrian surveys, the groups paying in cash and by electronic method differ from each other in the threshold above which they transition from cash to electronic solutions. It is true, for example, for electronic payers that when making small payments they prefer cash, however, in their case card usage is more frequent already above 37 euro.

Concerning the location of the payment as an aspect, it is worth mentioning that according to Esselink, Hernández (2017) the restaurants, bars and pastry shops and similar

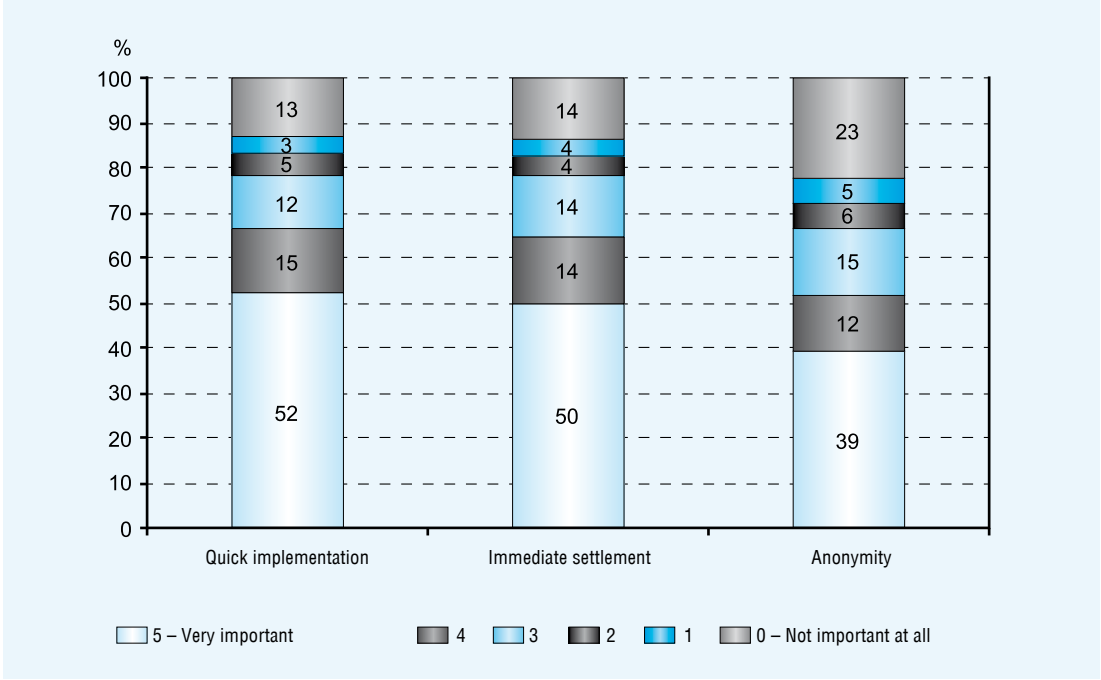
catering establishments in the euro area are characterized by a lot of relatively high-value cash payments. In the focus group interviews conducted within the framework of the MNB study serving as the basis for this study, several participants stated that in their opinion it would be possible to further improve the electronic payment options in these places. The research of the Swiss central bank (Schweizerische Nationalbank, 2017) confirms that the population uses cash in catering establishments to an extent above the average, and the same is true for purchases from vending machines and transactions between individuals. According to their data, cash usage is less typical in case of purchasing durable goods and payments made at gas stations.

The domestic questionnaire-based survey attempted to find an answer to the question what the population regards as the most important characteristics and advantages of cash payment *(see figure 8)*. In this case the interviewees could identify the subjective significance of 3 preliminarily determined characteristics on a six-grade scale: quick implementation, immediate settlement, anonymity. They could also list other characteristics important to them.

Both of the first two possible answers, i.e. quickness and immediacy proved to be a priority based on the answers: approximately half of the interviewees find them very important, while more than a quarter of them find it rather important. The anonymity guaranteed by cash payment is a not a negligible factor either: 39 percent of the interviewees find it extremely important, but compared to the previous characteristics the proportion of those who do not find it important at all is greater: 23 percent.

Figure 8

OPINION OF THE PUBLIC ON THE CHARACTERISTICS OF CASH PAYMENT



Source: Own editing based on MNB survey

It can be said about all the three aspects mentioned above that they are considered significantly less important by those with a higher educational attainment and those living in households with higher income, that is, those who generally prefer cash less. In addition, it can be established that for those living in Budapest the significance of immediate settlement and anonymity is smaller. It can also be observed that it is true in case of both quickness and immediacy as well as anonymity that cash payers find them more important than electronic payers: in case of the first two aspects mentioned above there is a nearly double discrepancy between those who find it very important. Concerning the role of quickness, it can be therefore supposed that those regularly paying in cash clearly find the payment method preferred by them quicker, while in the answers of electronic payers the quickness of cash payment as an advantage is less pronounced. The other characteristics of cash payment which are considered important by the interviewees are, for example, simplicity, full availability, convenience, but similarly to the previous questions the role of safety (fear of card abuses), the avoidance of bank charges and the better allocability of incomes appears.

In the survey of the European Central Bank (Esselink, Hernández, 2017) the participants were asked to identify the two most important advantages of the payment method preferred by them. In case of cash the better traceability of expenditures, full acceptance and quickness came first, and the other aspects mentioned by them included simplicity, safety, anonymity and immediate settlement. The subjective perception of other payment methods is shown by the fact that the interviewees indicated quite similar factors as the main advantages of card payment: simplicity and quickness ranked in the first two places (in this order), and they mentioned as an advantage that they do not need to pay attention to the amount of cash held with them when paying by card. The other aspects also overlap with the perceived advantages of cash, they include, for example, safety and the better controllability of expenditures.

The questions of the survey of both the Austrian (Rusu, Stix, 2017) and the Swiss central bank (Schweizerische Nationalbank, 2017) included a question concerning by what means the interviewees pay when being in a hurry. Interestingly, according to cash payers it is cash, and according to electronic payers it is card that is the quickest solution in these cases. These results confirmed the subjective perception of payment methods, and in broader terms, the pronounced role of subjectivity when choosing the method of the payment.

In the Swiss research referred to above, the questions concerning the advantages of the payment methods and the determiners of the choice between them were not separated: the interviewees had to choose the primary reason for choosing the payment instrument principally used by them. For cash users, greater control over their expenditures (31 percent) and simplicity (19 percent) proved to be the most important, however, nearly 15 percent of them prefer it out of habit. The important role of subjectivity, which we have mentioned before, is shown by the fact that in case of electronic payers, simplicity is also a pronounced aspect, 46 percent of them choose card payment for this reason, while for 14 percent the avoidance of the difficulties associated with cash withdrawal, and for 9 percent quickness means the principal reason.

Socio-demographic factors influencing cash usage

In case of the previous findings about cash usage and payment behaviour it might be pos-

sible that they stem from common grounds. It is possible, for example, that the subsequent impact of educational attainment on cash usage arises actually as an indirect consequence of the income, and similarly, there can be connections, for example, between income and age or labour market status, or between the type of the place of residence and age.

In order to establish the impact of the socio-demographic factors, filtered from each other, on payment behaviour, we apply the method of logistic regression estimation. The value of the dependent variable of the initially examined regression is 1 if it is true for the interviewee that he/she pays their regular purchases in cash, and it is 0 if he/she does so by mixed methods or by electronic means. As explanatory variables the dummy variables of the groups formed based age, educational attainment, the type of place of residence, the dummy variable expressing the subjective preference towards cash,[4] and the income of the household as constant variable, grouped according to 50,000 forints. In this regard we also examine the determiners of the cash payment of bills, the explanatory variables of the second regression including this are identical to the previous ones, and the value of the dependent variable is 1 if the given interviewee pays at least one of his/her utility bills regularly in[5] cash, and 0 if this criterion is not met.

The estimated coefficients of the above described two logistical regressions are contained in *Table 1*. The coefficients show how many times being part of the given socio-demographic group (and in case of incomes their increase by 50,000 forint) increases and (in case of a coefficient below 1) decreases the chance rate of the cash payment of regular purchases, and in case of utility bills, the chance rate of using cash payment method. It can be, therefore, established that the stronger determiner in both cases is clearly the subjective preference of cash payment. Age plays a significant role only in case of the payment of regular purchases in cash, here, however, it is true that compared to those aged 16–29 cash payment is less typical for all of the other age groups, especially for those aged 40–60. In case of everyday purchases and bill payments a higher educational attainment decreases the rate of cash payments and the same is true for the higher income of households, it can be, therefore, said that these two factors have a significant explanatory power even independently of each other. Among the statements previously made it can be refuted that the pensioner and student status would correspond with the rate of cash usage even regardless of age, but it is true that purchases in cash are more typical for the unemployed than for active workers. It can also be established that those living in county seats pay for their regular purchases in cash at a smaller rate compared to their counterparts in Budapest.

Besides the assessment of cash payments, we attempted to determine to what extent the examined socio-demographic factors influence the preference of electronic payment methods, and the openness towards the full transition to their usage. To this end we carried out two logistical regression estimations. The value of the dependent variable of the first one is 1 if the interviewee makes his/her regular purchases by card, and it is otherwise 0. The value of the dependent variable of the second one is 1 if the interviewee rather agrees with the statement *'If I could decide, I would carry out my payments exclusively in a cashless method/by electronic means.*', otherwise it is 0. The explanatory variables are identical to the variables used in the two previous regression estimations.

As described previously, the coefficients in *Table 2* show the effect of being a member of the given group on the relevant chance rate. As expected, it can be established that the subjective preference towards cash greatly decreases the rate of card payments, and the openness

Table 1

FACTORS INFLUENCING THE CASH PAYMENT OF EVERYDAY PURCHASES AND BILLS

	Cash payment of regular purchases	Using cash bill payment
Age (16-29)		
30-39	0.53*	0.98
40-49	0.28*	1.07
50-59	0.28*	1.34
60+	0.43*	0.64
Educational attainment (primary)		
Secondary, without secondary school diploma	0.48*	0.79
Secondary, with secondary school diploma	0.66*	0.61*
Tertiary	0.16*	0.52*
Labour market status (active)		
Unemployed	2.03*	0.79
Student	1.27	0.58
Pensioner	1.43	1.08
Other	1.20	1.11
Type of place of residence (Budapest)		
County seat	0.60*	1.07
Other town	0.66	1.19
Small settlement, village	0.70	1.28
Income of household (50 k HUF)	0.83*	0.94*
Subjective preference of cash	8.74*	3.62*
Constant	3.17*	1.97
R^2	0.29	0.11
N	1338	1338

*: Significant coefficients for a confidence level of 95%

Source: Own editing based on MNB survey

towards them. However, in case of higher educational attainment and higher household income an opposite impact can be observed, which confirms the earlier results of *Ilyés és Varga* (2015). It is also true that, perhaps a little surprisingly, higher age is accompanied by a greater rate of electronic payments in case of everyday purchases (a reason for this might be that older people are less likely to declare themselves to be mixed payers, as it can be read from figure 1). It can be said concerning the openness towards electronic methods that pensioners would be less willing to use them exclusively, while those living in county seats show more willingness to do so compared to those living in Budapest.

Table 2

FACTORS INFLUENCING ELECTRONIC PAYMENT AND THE OPENNESS TOWARDS IT

	Electronic payment of regular purchases	Openness towards the exclusive application of electronic payments
Age (16-29)		
30-39	1.79*	1.31
40-49	2.08*	1.17
50-59	2.12*	1.50
60+	2.86*	1.36
Educational attainment (primary)		
Secondary, without secondary school diploma	2.49*	1.70*
Secondary, with secondary school diploma	3.89*	1.49*
Tertiary	6.19*	2.23*
Labour market status (active)		
Unemployed	0.70	0.55
Student	0.59	0.82
Pensioner	0.62	0.58*
Other	0.55	1.19
Type of place of residence (Budapest)		
County seat	0.99	1.57*
Other town	0.93	1.14
Small settlement, village	0.76	1.18
Income of household (50 k HUF)	1.12*	1.07*
Subjective preference of cash	0.09*	0.26*
Constant	0.14*	1.30
R^2	0.33	0.12
N	1338	1338

*: Significant coefficients for a confidence level of 95%

Source: Own editing based on MNB survey

SUMMARY

Based on the analysis of the data from the 2017 questionnaire-based survey of the MNB, it can be said in conclusion that the domestic population is still strongly cash-oriented even nowadays, especially in the age group of 16–29 and above the age of 60 and in case of those with lower income and educational attainment. The role of cash is further increased by the fact that in comparison with the European Union, the proportion of those who receive their regular income fully or partly in cash is higher in Hungary.

In the choice made between the different payment methods the role of subjective pref-

erences, deep-rooted beliefs (for example, the quickness of cash) and habit is strong, and another frequent reason is the better control over the incomes. The proportion of those who choose cash usage out of necessity, primarily due to the insufficient POS terminal coverage, is non-inconsiderable, and it is true for a quarter of the interviewees that, although they prefer paying in cash on a subjective basis and they are currently cash or mixed payers, they consider it possible to transition fully to electronic solutions in the future. On this basis, it can reasonably be supposed that similarly to the past years the rate of electronic payments as well as the number of those using them as a primary payment method can increase further with the improvement of the infrastructure.

In case of the expenditures relating to utility bills the presence of cash is particularly pronounced, it can, therefore, be said that a significant share of the population insists on the yellow cheque. This might be caused partly by the habits, and party by the conscious management of household expenditures. In this regard our backwardness in terms of the usage of electronic payment methods is significant even compared to the member states of the European Union with similar levels of development. It can also be said that the cash withdrawal and payment behaviour of the interviewees is influenced to a non-inconsiderable extent by the avoidance of bank charges (including cash withdrawal and transaction charges), which can be considered high in international comparison, as well as the mistrust toward banks.

Appendix

THE BRIEF SUMMARY OF THE RELEVANT QUESTIONS OF THE QUESTIONNAIRE SERVING AS THE BASIS FOR THE RESEARCH

1. Socio-demographic questions: The gender, year of birth, the highest educational attainment, labour market status, type of place of residence of the interviewee. The number of those living in the same household as the interviewee and the full income of the household.

2. Access to cash and cash holding: Whether the interviewee has regular income, and if so, in what form he/she receives it. Where he/she generally withdraws cash, how many times a month, and how much. Whether he/she has savings in cash.

3. Payment habits: In general, by what method the interviewee pays his/her regular purchases and what kind of payment methods he/she uses to settle the utility bills.

4. Motivation of cash usage, attitude towards cash: To what extent the aspects below influence whether the interviewee pays in cash: location of payment, amount payable, habit. To what extent the characteristics of cash payment below are important for the interviewee: quickness, immediate settlement, anonymity. To what extent the interviewee agrees with the statements below: *'I need cash because there are still many places where this is the only means to carry out daily payments'. 'I prefer paying in cash than by electronic means'. 'If I pay in cash, I can allocate my money more easily'. 'If I could decide, I would carry out my payments exclusively in a cashless method/by electronic means'.*

Notes

[1] The questionnaire contained 'other, to be specified...' possible answer, so those asked in the survey had the opportunity to provide other electronic payment methods apart from bank card, but no such answer was given. This leads us to suppose that the group of those choosing bank card payment includes all of those who typically pay by electronic means, so in a cashless manner.

[2] In the foreign surveys the questions usually concern how the interviewee, by their own admission, pays in situations where they can use both cash and bank card.

[3] Estimated value based on the direct debit data for one person in the European Union and the analyses carried out by the Central Bank (Source: MNB Payment System Report 2018)

[4] Its value is 1 if the interviewee rather agrees with the statement: 'I prefer paying in cash than by electronic means', otherwise it is 0.

[5] In practice, this generally means bill payment by yellow cheque.

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